

## General

### Title

Infectious diseases: ratio of episodes of bacteremia related to central venous catheter (CVC) to days with a CVC in place.

### Source(s)

Quality indicators in critically ill patients. Madrid (Spain): Spanish Society of Intensive and Critical Care and Units Coronary (SEMICYUC); 2011. 185 p.

## Measure Domain

### Primary Measure Domain

Clinical Quality Measures: Outcome

### Secondary Measure Domain

Does not apply to this measure

## Brief Abstract

### Description

This measure is used to assess the ratio of episodes of bacteremia related to central venous catheter (CVC) to days with a CVC in place.

### Rationale

The aim of intensive care medicine is to provide critical patients with the healthcare that they need, ensuring the quality and safety of care. Intensive care medicine is one of the principal components of modern healthcare systems. There is an increasing demand for this resource, which involves high costs.

The quality of care has gradually come to be the central focus of healthcare, and in recent years patient safety has come to represent one of the key aspects of quality. In the case of intensive care medicine, this interest in quality is even more evident, not only because of its social and economic impact, but also because some of the dimensions involved in the quality of care of critical patients take on greater importance: critical patients are more vulnerable, access to critical care is more limited so efforts to

distribute resources equitably are more important, scant scientific evidence is available, and the efficiency is limited.

The use of central venous catheters (CVC) is indispensable in the treatment of hospitalized patients. Infection is one of the most important complications of CVC use. Bacteremia due to CVC is the main cause of nosocomial bacteremia in intensive care unit (ICUs), being the third cause of nosocomial infection (after pneumonia and urinary infections). Although its real impact has not been well established, it is estimated that bacteremia related to CVCs results in 10% mortality, ICU stays prolonged by 5 to 8 days, and increased use of ICU resources. Like all nosocomial infections, bacteremia due to CVC can be prevented.

## Evidence for Rationale

Garner JS, Jarvis WR, Emori TG, Horan TC, Hughes JM. CDC definitions for nosocomial infections, 1988. *Am J Infect Control*. 1988 Jun;16(3):128-40. [PubMed](#)

Palomar M, Vaque J, Alvarez Lerma F, Pastor V, Olaechea P, Fernandez-Crehuet J. [Nosocomial infection indicators]. *Med Clin (Barc)*. 2008 Dec;131 Suppl 3:48-55. [PubMed](#)

Palomar Martinez M, Alvarez Lerma F, Riera Badia MA, Leon Gil C, Lopez Pueyo MJ, Diaz Tobajas C, Sierra Camerino R, Benitez Ruiz L, Agra Varela Y, Grupo de Trabajo del Estudio Piloto. [Prevention of bacteremia related with ICU catheters by multifactorial intervention: a report of the pilot study]. *Med Intensiva*. 2010 Dec;34(9):581-9. [PubMed](#)

Pronovost P, Needham D, Berenholtz S, Sinopoli D, Chu H, Cosgrove S, Sexton B, Hyzy R, Welsh R, Roth G, Bander J, Kepros J, Goeschel C. An intervention to decrease catheter-related bloodstream infections in the ICU. *N Engl J Med*. 2006 Dec 28;355(26):2725-32. [PubMed](#)

Pronovost PJ, Goeschel CA, Colantuoni E, Watson S, Lubomski LH, Berenholtz SM, Thompson DA, Sinopoli DJ, Cosgrove S, Sexton JB, Marsteller JA, Hyzy RC, Welsh R, Posa P, Schumacher K, Needham D. Sustaining reductions in catheter related bloodstream infections in Michigan intensive care units: observational study. *BMJ*. 2010;340:c309. [PubMed](#)

Quality indicators in critically ill patients. Madrid (Spain): Spanish Society of Intensive and Critical Care and Units Coronary (SEMICYUC); 2011. 185 p.

## Primary Health Components

Infectious disease; nosocomial infection; bacteremia; central venous catheter (CVC)

## Denominator Description

Total number of days with a central venous catheter (CVC) in place (see the related "Denominator Inclusions/Exclusions" field)

## Numerator Description

Number of episodes of bacteremia related to central venous catheters (CVC) (see the related "Numerator Inclusions/Exclusions" field)

# Evidence Supporting the Measure

## Type of Evidence Supporting the Criterion of Quality for the Measure

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

## Additional Information Supporting Need for the Measure

Unspecified

## Extent of Measure Testing

Unspecified

# State of Use of the Measure

## State of Use

Current routine use

## Current Use

not defined yet

# Application of the Measure in its Current Use

## Measurement Setting

Hospital Inpatient

Intensive Care Units

## Professionals Involved in Delivery of Health Services

not defined yet

## Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

## Statement of Acceptable Minimum Sample Size

Unspecified

## Target Population Age

Age greater than or equal to 18 years

## Target Population Gender

Either male or female

# National Strategy for Quality Improvement in Health Care

## National Quality Strategy Aim

Better Care

## National Quality Strategy Priority

Making Care Safer

Prevention and Treatment of Leading Causes of Mortality

# Institute of Medicine (IOM) National Health Care Quality Report Categories

## IOM Care Need

Getting Better

## IOM Domain

Effectiveness

Safety

# Data Collection for the Measure

## Case Finding Period

Unspecified

## Denominator Sampling Frame

Patients associated with provider

## Denominator (Index) Event or Characteristic

Institutionalization

Therapeutic Intervention

## Denominator Time Window

not defined yet

## Denominator Inclusions/Exclusions

Inclusions

Total number of days with a central venous catheter (CVC) in place

Population: All days of CVC in patients discharged after having spent greater than 24 hours in the intensive care unit (ICU) during the period reviewed.

Exclusions

Unspecified

## Exclusions/Exceptions

not defined yet

## Numerator Inclusions/Exclusions

Inclusions

Number of episodes of bacteremia related to central venous catheters (CVC)

Note:

Bacteremia related to CVC: According to the Centers for Disease Control and Prevention (CDC) criteria and those used in the ENVIN-UCI study.

ENVIN: From the Spanish acronym for National Study to Investigate Nosocomial Infection.

Exclusions

Unspecified

## Numerator Search Strategy

Institutionalization

## Data Source

Electronic health/medical record

Paper medical record

Other

## Type of Health State

Adverse Health State

## Instruments Used and/or Associated with the Measure

Unspecified

## Computation of the Measure

### Measure Specifies Disaggregation

Does not apply to this measure

### Scoring

Ratio

### Interpretation of Score

Desired value is a lower score

### Allowance for Patient or Population Factors

not defined yet

### Standard of Comparison

not defined yet

### Prescriptive Standard

Standard: 4 episodes per 1000 days with a central venous catheter (CVC) in place

### Evidence for Prescriptive Standard

Quality indicators in critically ill patients. Madrid (Spain): Spanish Society of Intensive and Critical Care and Units Coronary (SEMICYUC); 2011. 185 p.

Spanish Society of Intensive and Critical Care and Units Coronary (SEMICYUC), Working Group of Infectious Diseases. Estudio nacional de vigilancia de infeccion nosocomial en servicios de medicina intensiva. 2009. 78 p.

## Identifying Information

### Original Title

Bacteremia related to central venous catheter.

### Measure Collection Name

Quality Indicators in Critically Ill Patients

## Measure Set Name

Infectious Diseases

## Submitter

Spanish Society of Intensive and Critical Care and Units Coronary - Clinical Specialty Collaboration

## Developer

Spanish Society of Intensive and Critical Care and Units Coronary - Clinical Specialty Collaboration

## Funding Source(s)

Boehringer Laboratories

## Composition of the Group that Developed the Measure

Work Group for Infectious Diseases

Alejandro Rodríguez Oviedo  
Francisco Mariscal Sistiaga  
Francisco Álvarez Lerma  
Rafa Zaragoza Crespo

Scientific Coordination:

Maria Cruz Martín Delgado  
Jesús Blanco Varela  
Lluís Cabré Pericas  
Pedro Galdos Anuncibay  
Federico Gordo Vidal

## Financial Disclosures/Other Potential Conflicts of Interest

Unspecified

## Adaptation

This measure was not adapted from another source.

## Date of Most Current Version in NQMC

2011 Mar

## Measure Maintenance

Unspecified

## Date of Next Anticipated Revision

2016 Jul

## Measure Status

This is the current release of the measure.

The measure developer reaffirmed the currency of this measure in May 2016.

## Measure Availability

Source available in [English](#)  and [Spanish](#)  from the Spanish Society of Intensive and Critical Care and Units Coronary (SEMICYUC) Web site.

For more information, contact SEMICYUC at Paseo de la Reina Cristina, 36, 4º D, Madrid, Spain; Phone: +34-91-502-12-13; Fax: +34-91-502-12-14; Web site: [www.semicyuc.org](http://www.semicyuc.org) ; E-mail: [secretaria@semicyuc.org](mailto:secretaria@semicyuc.org).

## NQMC Status

This NQMC summary was completed by ECRI Institute on January 3, 2014. The information was verified by the measure developer on February 26, 2014.

The information was reaffirmed by the measure developer on May 10, 2016.

## Copyright Statement

This NQMC summary is based on the original measure, which is subject to the measure developer's copyright restrictions.

The Quality Indicators in Critically Ill Patients update 2011 can be used by any private or public body only for the purposes of research, clinical management, teaching and education, and will not be used for any other purpose. In all cases, full credit to the Spanish Society of Intensive Care Medicine (SEMICYUC) will be granted. The commercial use of the Quality Indicators in Critically Ill Patients update 2011 is explicitly forbidden.

## Production

### Source(s)

Quality indicators in critically ill patients. Madrid (Spain): Spanish Society of Intensive and Critical Care and Units Coronary (SEMICYUC); 2011. 185 p.

## Disclaimer

### NQMC Disclaimer

The National Quality Measures Clearinghouse® (NQMC) does not develop, produce, approve, or endorse the measures represented on this site.



All measures summarized by NQMC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public and private organizations, other government agencies, health care organizations or plans, individuals, and similar entities.

Measures represented on the NQMC Web site are submitted by measure developers, and are screened solely to determine that they meet the [NQMC Inclusion Criteria](#).

NQMC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or its reliability and/or validity of the quality measures and related materials represented on this site. Moreover, the views and opinions of developers or authors of measures represented on this site do not necessarily state or reflect those of NQMC, AHRQ, or its contractor, ECRI Institute, and inclusion or hosting of measures in NQMC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding measure content are directed to contact the measure developer.